



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/565,172

01/19/2006

Rodney Alan Cross

3003-1115-1

7245

466 7590 05/13/2008

YOUNG & THOMPSON  
209 Madison Street  
Suite 500  
ALEXANDRIA, VA 22314

EXAMINER

PICKARD, ALISON K

ART UNIT

PAPER NUMBER

3676

MAIL DATE

DELIVERY MODE

05/13/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/565,172	<b>Applicant(s)</b> CROSS ET AL.	
	<b>Examiner</b> Alison K. Pickard	<b>Art Unit</b> 3676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 51-76 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 51-76 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____.                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____.  | 6) <input type="checkbox"/> Other: ____.                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 51-54, 57, 58, 60, 61, 63-65, 67, 68, 70-72, and 75 are rejected under 35

U.S.C. 102(b) as being anticipated by Kimura (5,224,714).

Kimura discloses an apparatus having a first portion 3 with a frusto-conical surface 31, a second portion 4 with a flat surface and a biasing device 10. The apparatus operates in a non-contact mode with gas between the faces, but the surfaces are in contact when the portions are at rest. The second portion includes an axially moveable tile carrier 5 with a tile element 4 defining the flat surface. The second sealing surface is located within a housing 6 having a ring (leg portion near line 2rb) on which the surface slides (forms the radial sealing surface). The apparatus has diverging gaps on either side of the closest point of engagement of the faces because of at least surface 31 and grooves 33.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 3676

4. Claims 51-58, 60, 61, 63-72, 75 and 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura in view of Ide (4,738,453).

Kimura discloses an apparatus having a first portion 3 with a frusto-conical surface 31, a second portion 4 with a flat surface and a biasing device 10. The apparatus operates in a non-contact mode with gas between the faces, but the surfaces are in contact when the portions are at rest. The second portion includes an axially moveable tile carrier 5 with a tile element 4 defining the flat surface. The second sealing surface is located within a housing 6 having a ring (leg portion near line 2rb) on which the surface slides (forms the radial sealing surface). Kimura does not disclose plural pivotably mounted tiles. Ide teaches a non-contact sealing apparatus having a first portion biased toward a second portion. Ide teaches using lift pads/tiles 40 having flat surfaces and biasing devices 42. Ide teaches that the use of the pads helps control the fluid film, and thus the seal, between the faces. Ide also teaches that this arrangement is less affected by contaminants. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the flat face of Kimura with the pad/tiles taught by Ide to improve the sealing function of the apparatus. This configuration would provide the diverging gaps on either side of the closest point between the faces. Regarding claim 76, Kimura's prior art shows the faces without grooves.

5. Claim 62 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura in view of Ide and further in view of Gardner

Gardner teaches the use of additional seal on the opposite side of the rotor to create a bi-directional seal that functions regardless of shaft rotation direction. It would have been obvious

Art Unit: 3676

to modify the first portion with an additional frusto-conical surface and mating ring as taught by Gardner to ensure a seal regardless of shaft rotation direction.

6. Claims 59, 73 and 74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura in view of Ide as applied to claims 51 and 69 and further in view of Gardner.

Kimura does not appear to disclose a coating on the surfaces. Gardner teaches using a coating to provide lubrication in dry gas environments. However, Gardner does not state the coating is abradable. The selection of a known material based on its suitability for its intended use is considered obvious. See *In re Leshin*, 125 USPQ 416 (CCPA 1960). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use an abradable coating to provide lubrication in certain environments.

7. Claim 66 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura.

Kimura discloses coil springs as the biasing device. The examiner takes official notice that a wave spring is an equivalent biasing device to a coil spring. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus by using a wave spring instead of coil springs.

### ***Response to Arguments***

8. Applicant's arguments filed 1-16-08 have been fully considered but they are not persuasive.

As stated above, the claims are still considered anticipated by Kimura due to the grooves in the lower face of the ring. This would create multiple gaps. And, Kimura in view of Ide would create the gaps in a manner similar to Applicant's in that additional gaps are formed with respect to each pad regardless of any grooves.

***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alison K. Pickard whose telephone number is 571-272-7062. The examiner can normally be reached on M-F (9-5).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer Gay can be reached on 571-272-7029. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3676

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Alison K. Pickard/  
Primary Examiner, Art Unit 3676

AP